

### REMARKS

Claims 1-25 are pending. Claims 1, 9-19, 21, 22, and 25 are amended herein. No new matter has been added.

### Specification

The abstract is amended as required by the Office Action.

### Claim Objections

Claims 1 and 25 are amended to address the objections raised in the Office Action.

### § 112 Rejections

#### Claims 1-17 and 21-25

According to the Office Action, Claims 1-17 and 21-25 are rejected under 35 U.S.C. § 112, first paragraph. Applicants respectfully submit that, as amended, Claims 1-17 and 21-25 satisfy the requirements of 35 U.S.C. § 112, first paragraph.

According to page 19 of the Office Action, certain features recited in Claims 1 and 9 were not given patentable weight in view of the rejection under 35 U.S.C. § 112, first paragraph. While Applicants believe that this is no longer an issue considering the claim amendments made herein, Applicants respectfully note that, even if the claims are rejected under 35 U.S.C. § 112, first paragraph, “[t]he examiner should still consider the subject matter added to the claim in making rejections based on prior art since the new matter rejection may be overcome by applicant” (please see MPEP § 2163.06(I)).

#### Claims 22-24

According to the Office Action, Claims 22-24 are rejected under 35 U.S.C. § 112, second paragraph. Applicants respectfully submit that Claims 22-24 satisfy the requirements of 35 U.S.C. § 112, second paragraph. For example, the instant application describes a prefetch unit (“means for prefetching data”) that includes trackers (“means for observing data transfers”) and decoding logic (“means for using bit vectors”).

#### § 103 Rejections

#### Claims 1-16, 18, 21, 22, 24, and 25

According to the Office Action, Claims 1-16, 18, 21, 22, 24, and 25 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Willke, II (“Willke;” U.S. Patent No. 6,625,696) in view of Ledeböhm et al. (“Ledeböhm;” U.S. Patent No. 7,065,630). The Applicants have reviewed the cited references and respectfully submit that the features recited in Claims 1-16, 18, 21, 22, 24, and 25 are not shown or suggested by Willke and Ledeböhm, alone or in combination. (It is not conceded that either Willke or Ledeböhm are in fact prior art with respect to the present application. The option to swear behind those references is reserved.)

More specifically, Applicants respectfully submit that the primary reference Willke does not show or suggest all of the features of independent Claims 1, 9, 18, and 22, and that the secondary reference Ledeböhm does not show or suggest a modification to Willke that overcomes the deficiencies of Willke. Namely, Applicants respectfully submit that neither Willke nor Ledeböhm shows or suggests:

“a stream-type sequential access pattern having a direction that is tracked by setting bits in a bit vector, and wherein further the tracker is configured to use the bit

vector to predictively load a target cache line indicated by the direction of the stream-type sequential access pattern” as recited in independent Claim 1 (emphases added);

“a stream-type sequential access pattern comprising an order in which adjacent storage locations in the first memory are accessed, wherein the order is tracked by setting bits in a bit vector; ... wherein the prefetch unit uses the bit vector to predictively load target cache lines from the first memory into the cache memory, and wherein the target cache lines are indicated by the sequential access pattern identified by the bit vector” as recited in independent Claim 9 (emphases added);

“using bit vectors to track multiple stream-type sequential access patterns by the processor to the first memory, wherein the access patterns comprise orders in which adjacent storage locations in the first memory are accessed, wherein the orders are tracked by setting bits in respective bit vectors; and prefetching data from the first memory to the second memory as indicated by the access patterns identified by the bit vectors” as recited in independent Claim 18 (emphases added); and/or

“means for using bit vectors to track multiple stream-type sequential access patterns by the processor to the first memory, wherein the access patterns comprise orders in which adjacent storage locations in the first memory are accessed, wherein the orders are tracked by setting bits in respective bit vectors; and means for prefetching data from the first memory to the second memory as indicated by the access patterns identified by the bit vectors” as recited in independent Claim 22 (emphases added).

As understood by the Applicants, Willke is limited to predicting quantities of data (e.g., number of cache lines) and thus does not teach or suggest the features recited above, while Ledeborn is silent with regard to the features recited above.

Accordingly, Applicants respectfully submit that Willke and Ledebohm do not show or suggest the features of independent Claims 1, 9, 18, and 22, and that those claims are in condition for allowance.

Each of the Claims 2-8 and 25 includes all of the features of Claim 1 plus additional features. Each of the Claims 10-16 and 21 includes all of the features of independent Claim 9 plus additional features. Claim 24 includes all of the features of independent Claim 22 plus additional features. Applicants respectfully submit that Willke and Ledebohm do not show or suggest the features of Claims 2-8, 10-16, 21, 24, and 25 in combination with the features of their respective base claim, and that Claims 2-8, 10-16, 21, 24, and 25 are in condition for allowance at least because they depend from an allowable claim.

In conclusion, Applicants respectfully submit that Claims 1-16, 18, 21, 22, 24, and 25 traverse the basis for rejection under 35 U.S.C. § 103(a).

#### Claim 17

According to the Office Action, Claim 17 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Willke in view of Ledebohm and further in view of the “Microsoft Computer Dictionary” (“the Dictionary”). The Applicants have reviewed the cited references and respectfully submit that the features recited in Claim 17 are not shown or suggested by Willke, Ledebohm, and the Dictionary, alone or in combination.

Claim 17 is dependent on independent Claim 9. As presented above, Applicants submit that Willke and Ledebohm do not show or suggest the features of Claim 9 that are recited above. Applicants further submit that the Dictionary is silent with regard to those

features. Hence, Applicants submit that Claim 9 is allowable over Willke, Ledeböhm, and the Dictionary.

Because Claim 17 includes all of the features of Claim 9 plus additional features, Applicants respectfully submit that Willke, Ledeböhm, and the Dictionary do not show or suggest the features of Claim 17, and that Claim 17 is in condition for allowance at least because it depends from an allowable claim.

In conclusion, Applicants respectfully submit that Claim 17 traverses the basis for rejection under 35 U.S.C. § 103(a).

Claims 19, 20, and 23

According to the Office Action, Claims 19, 20, and 23 rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Willke in view of Ledeböhm and further in view of Brooks (U.S. Patent No. 6,081,868). The Applicants have reviewed the cited references and respectfully submit that the features recited in Claims 19, 20, and 23 are not shown or suggested by Willke, Ledeböhm, and Brooks, alone or in combination.

Claims 19 and 20 are dependent on independent Claim 18, and Claim 23 is dependent on independent Claim 22. As presented above, Applicants submit that Willke and Ledeböhm do not show or suggest the features of Claims 18 and 22 that are recited above. Applicants further submit that Brook is silent with regard to those features. Hence, Applicants submit that Claims 18 and 22 are allowable over Willke, Ledeböhm, and Brooks.

Because Claims 19 and 20 include all of the features of Claim 18 plus additional features, and because Claim 23 includes all of the features of Claim 22 plus additional features, Applicants respectfully submit that Willke, Ledeborn, and Brooks do not show or suggest the features of Claims 19, 20, and 23, and that Claims 19, 20, and 23 are in condition for allowance at least because they depend from an allowable claim.

In conclusion, Applicants respectfully submit that Claims 19, 20, and 23 traverse the basis for rejection under 35 U.S.C. § 103(a).

#### Conclusions

In light of the above, Applicants respectfully request reconsideration of the rejected claims. Applicants respectfully assert that Claims 1-25 overcome the rejections of record and respectfully solicit allowance of those claims.

The Examiner is urged to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present application.

Please charge any additional fees or apply any credits to our PTO deposit account number: 50-4160.

Respectfully submitted,  
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Dated: October 5, 2010

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